REMARKS

Priority

Copies of the certified German priority documents have been previously submitted in response to the office action of April 23, 2008.

Abstract

A new Abstract follows.

Drawings

The drawings have not been amended as changes to the drawings are not believed necessary.

Claim Objections

Claims 1-30 are cancelled. The subject matter of claims 1-3 and 14-30 has been rewritten as claims 31-44. No new matter has been added.

Claims 1 and 14 were rejected under 35 U.S.C. 102(b) as anticipated by Mehnert et al. (US5714882), hereinafter Mehnert.

Claims 1-30 are cancelled. The subject matter of claims 1-3 and 14-30 has been rewritten as claims 31-44.

The pending patent application discloses a position detection sensor which is a passive sensor (no external electrical current is necessary to generate the electrical signals) and which detects the direction of the movement as well as the position.

Mehnert discloses a position detector which utilizes an energy converter 5.

With respect to US 5,714,882 we refer to col. 5, lines 32 to 62. Element 11' of the embodiment disclosed is identical to element 11, but only useable for measurement of rotation

of high degree. For measurement of rotation of low degree - down to zero - the element 11 needs for operation the additional ferromagnetic element 9. Thus the prior system needs at least two ferromagnetic elements, namely 9 and 11.

Independent claim 31 does not read on Fig. 1 of Mehnert '882. As such, claim 31 as well as the claims which depend therefrom are patentable. Consideration of new claims 31-44 is requested.

Claims 1-3, 17-22, 24, 25, 28 and 29 were rejected under 35 U.S.C. 102(b) as being anticipated by Steinich et al. (US6084400)

Claims 1-30 are cancelled. The subject matter of claims 1-3 and 14-30 has been rewritten as claims 31-44.

Steinich discloses a rotation sensor which needs two ferro- magnetic elements, see among others claim 1: "... the counting arrangement (4) comprises at least two pulse-wire motion sensors (70, 71) ..." The ". .. at least one permanent magnet (72) ..." refers to the exciter magnet according to the invention and not the ferromagnetic element. Steinich does not disclose the claimed ferromagnetic element (FE) having Weiss regions and Bloch walls.

As such, claims 31-44 are believed patentable. Consideration of claims 31-44 is requested.

Claims 1, 23 and 30 were rejected under 35 U.S.C. 102 (b) as being anticipated by Fowler (US 6265867)

Fowler does not disclose the claimed ferromagnetic element (FE) having Weiss regions and Bloch walls. As such, claims 31-44 are patentable.

Consideration of new claims 31-61 is requested.

Claims 15, 16, 26 and 27 were rejected under 35 U.S.C. 103(a) as being unpatentable over

Steinich in view of Romanik (US7113063).

Romanik discloses an apparatus implementing and using techniques for sensing rotations of a rotating device. Starting from this document there is no hint that the direction of the movement could be detected. This is not necessary as this apparatus is used to count the gas flow in a pipe which is always in the same direction.

As such, claims 31-44 are believed patentable. Consideration of claims 31-44 is requested.

General Remarks Applicable to All Rejections

The subject matter of the invention establishes a movement detector with only one ferromagnetic element for generation of information concerning direction of movement of the exciter magnet EM based on polarity and position of the magnet. The realization of such a detector requires extremely few elements as set forth in the drawings and in the description of the pending application and are not found in the prior art.

These movements can be translational for example for determining speed or stroke of a piston or plunger or the like - or rotational. Because a rotational movement becomes translational when its radius is infinity -- this is quite clear for a person skilled in the art --the translational movement was not represented in the drawing.

In case of counting the repetition of such movements there is further information necessary, namely knowledge about the last position of the moving exciter magnet in order to how whether the count is increasing or is decreasing.

For this action a nonvolatile memory as part of an evaluation circuit is necessary for storing said position, see Fig. 6 of the application.

As discussed above none of the cited prior art discloses a detector for detecting movements of an exciter magnet with only one ferromagnetic element for determining polarity and position of the associated exciter magnet representing the direction of said movement - in other words, on the output of the coils SP1, SP2 you have information that movement took place and in which direction this movement was pointing - which is necessary for the determining of the direction of a counting - increasing or decreasing - if such a detector is used to deliver the input for a counter.

All the cited prior art requires at least two but normally three detection systems, namely:
United States Patent No. 5714882 requires two elements 9,11;
United States Patent No. 6,265,867 requires elements 102/104 and 202/204;
United States Patent No. 6,084,400 requires elements 6, 7 and 8;
whereas according to the instant invention-only one current consumer-is necessary.

US 7,113,063 B2 uses reed contacts 315/380 for detection which are not useable to detect direction.

With respect to US 5,714,882 we refer to col. 5, lines 32 to 62. Element 11' of the embodiment disclosed is identical to element 11, but only useable for measurement of rotation of high degree. For measurement of rotation of low degree - down to zero - the element 11 needs for operation the additional ferromagnetic element 9. Thus the prior system needs at least two ferromagnetic elements, namely 9 and 11 whereas the invention claims only a single ferromagnetic element with Weiss regions and Bloch walls. The single detection system as claimed is different than the cited references in both structure and function and therefore claims 31-44 are allowable.

Many license contracts for the invention exist.

Summary

Consideration of claims 31-44 is requested. No new matter is included. All claims are believed patentable over the references cited in the April 23, 2008 office action for the reasons stated above.

This Amendment is in response to the office action dated April 23, 2008 is being submitted together with a two-month extension of time and payment therefor. In the event that the office deems this response as untimely within the two month time period extension, please consider this as a conditional petition for an extension of time in which to file the Amendment. Additionally, please charge deposit account 23-3060 as required.

Claims 31-44 are in the application.

Respectfully submitted,

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New Abstract

A detector for detecting movements which, in its simplest form of embodiment, has one exciter magnet: (EM) and only one individual pulse wire (FE) with one induction coil (SP1) and with a sensor (SP2, HS) for determining polarity and position of the moveable exciter magnet (EM). All information is simultaneously determined at the time (T_s), that the ferromagnetic element (FE) is triggered and remagnetized by said magnet (EM). For counting operation a further information about the last established position and polarity of the exciter magnet is used, which is stored in a nonvolatile memory (36) of an associated evaluation circuit.